# Benefits & Advantages of Renewable Energy Certificates from Local and Regional Projects


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***Community Energy, Inc.***

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***American Lung Association of New York State, Inc.***

# Co-Presenters


- Nation's leading marketer of wind energy
- Developer and partner in wind energy projects in Eastern & Midwest U.S.
- Creating the market for over 250 MW of new wind
- Customers include 15 of the 20 largest U.S. wind energy purchases


- Not-for-profit, voluntary health agency,
- Mission to prevent lung disease and promote lung health.
- Serves 57 counties and more than 10 million people throughout NY state.
- Active on environmental and renewable energy policy issues

# Overview

- REC supply options
- Why Local/Regional Clean Energy Supply?
- Benefits of Local & Regional
  - Environmental & Public Health
  - Economic Development
  - Customer Value
  - Education, Awareness, Market Building
- Case Studies:  Customers Building New Local & Regional Wind Projects

# REC Supply: What's out there (1)

| Compliance RECs | Period | $/MWh (indicative) |
|---|---|---|
| | | |
| CT - Class I | 2004 | $40.00 |
| CT – Class II | 2004 | $0.70 |
| | | |
| MA New Renewable | Q1 2004 | $41.00 |
| | | |
| Maine | 2004 | $0.25 |
| | | |
| NJ – Class I | 2004 | $7.25 |
| NJ – Class II | 2004 | $4.25 |
| | | |
| Texas | 2004 | $13.00 |

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"New" vintage restrictions + resource restrictions create high demand

30% RPS but 50% of sources qualify

RPS caused steady supply growth & stable pricing

# REC Supply: What's out there (2)

| Voluntary RECs | Period | $/MWh (indicative) |
|---|---|---|
| | | |
| NJ - Solar | 2004 | $175.00 |
| NY/PJM – New Wind | 2004 | $18.00 |
| National – Solar | 2004 | $18.00 |
| PJM – New LFG | 2004 | $7.00 |
| NY – New LFG | 2004 | $4.50 |
| National – New Wind | 2004 | $2.50 |
| National – New LFG | 2004 | $1.75 |
| National – New Geothermal | 2004 | $1.50 |
| National – Old Wind | 2004 | $1.25 |
| National – Old Biomass/LFG | 2004 | $0.75 |

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RPS needs plus tights supply plus high capital cost

Supply growing moderately in higher cost areas

Better wind resources and lots of supply

# Why is Regional Important?

- Displacement of older, dirtier resources in the Power Grid
- Address local pollution, regional Air-shed issues
- Bringing new resources on-line (and in areas where not as economic)
- "Additionality"

# REC Market Drivers

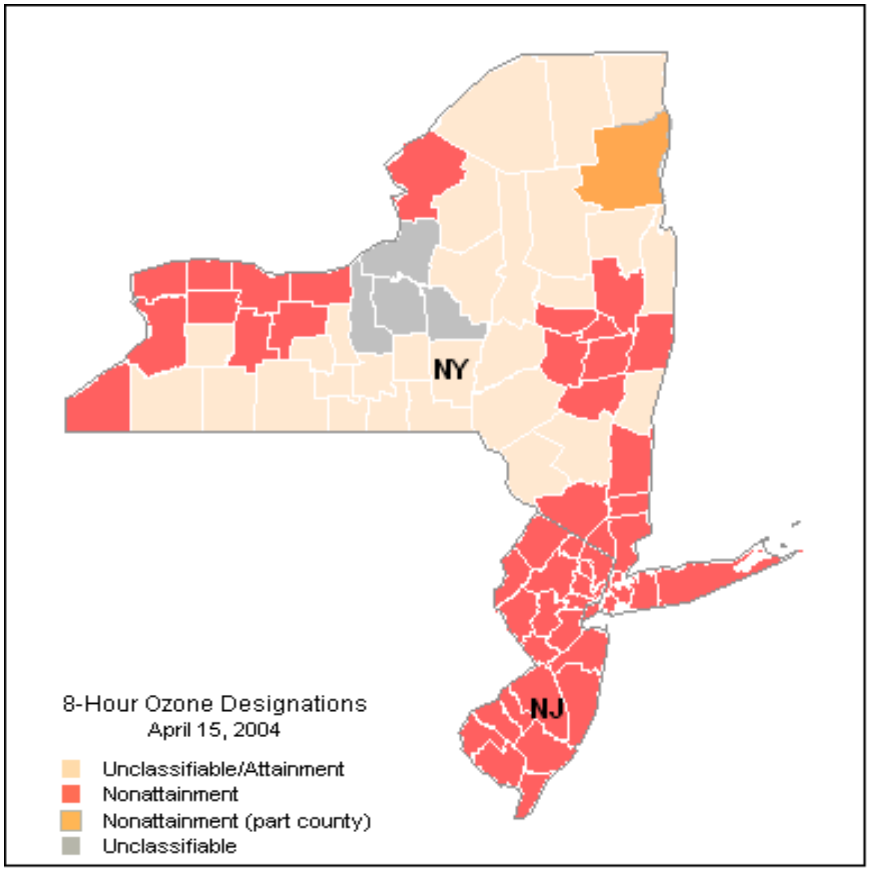
- **Compliance Markets – RPS**
  - Usually a preference for local/regional supply or specific technologies
- **Voluntary Markets**
  - Customers want to make a difference in the "community"
    - Utility Green Programs, Residences
    - Government RFPs
    - Education Sector
  - Large Global/National buyers may have less local/regional preference; lowest price wins
- **Clean Energy Funds**
  - Ratepayer-collected funds; invest in new technologies and local/regional development

# Benefits of Regional Clean Energy

- Environmental & Public Health Benefits
- Economic Development
- Customer Value
- Education & Awareness

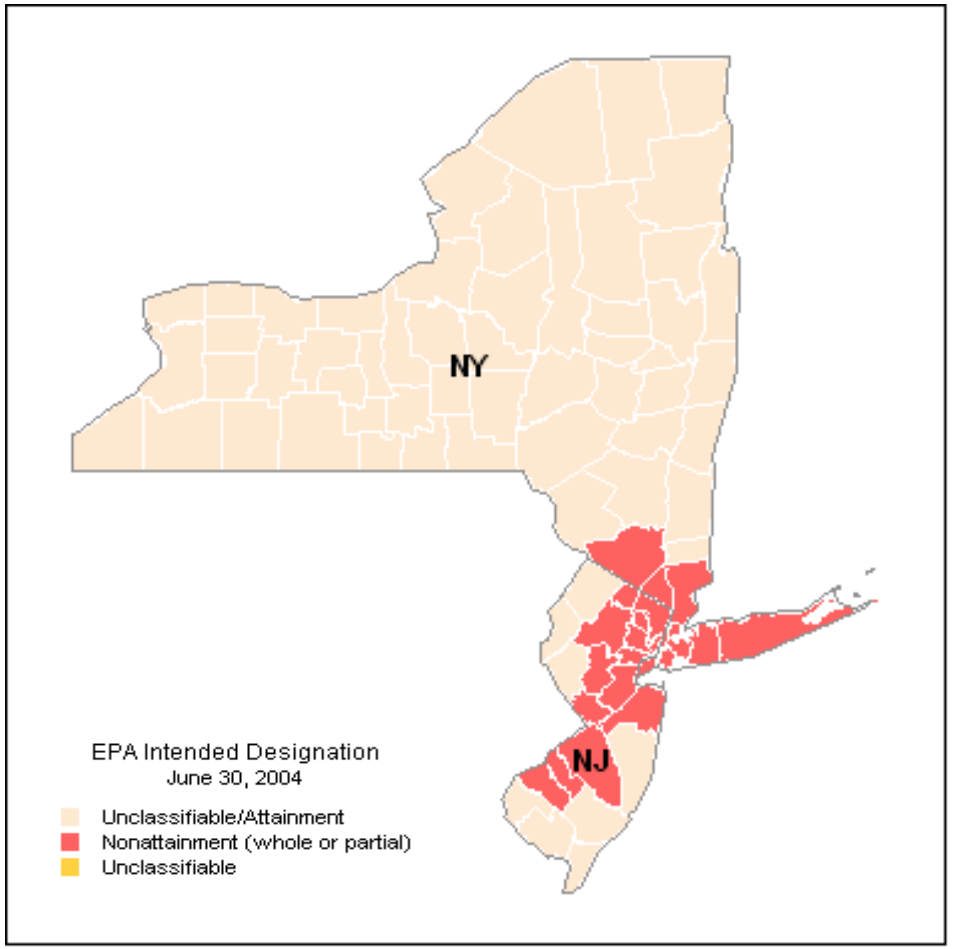
# Ozone in New York State

- Shaded areas are out of attainment for ozone health standard
- 89% of the population lives in one of these counties
- The state will need to adopt policies to "unshade" all of these areas by 2010



# Fine Particles in New York State

- Decision is due in mid-November
- It appears that all of the NYC metro area will be listed as out of attainment for PM2.5
- State will have to adopt policies which will cut PM2.5-related emissions



# Health Effects – Ozone

- Triggers asthma attacks—over 500,000 in a typical summer
- Drives up visits to emergency rooms
- Increases use of medication for kids with asthma (ALA of CT asthma camp study)
- More hot days = more ozone violations
- Cutting greenhouse gases to the levels targeted in Kyoto protocol could prevent over 8,500 premature deaths in a 20 year period in NYC Metro area

# Health Effects – Fine Particles

- Triggers asthma attacks
- Linked to premature death in seniors
  - Power plants emissions are thought to cause over 1,200 each year in NYS
- Linked to second heart attacks
- Lung cancer agent—poses the same risk at that a non-smokers faces living with a smoker for years

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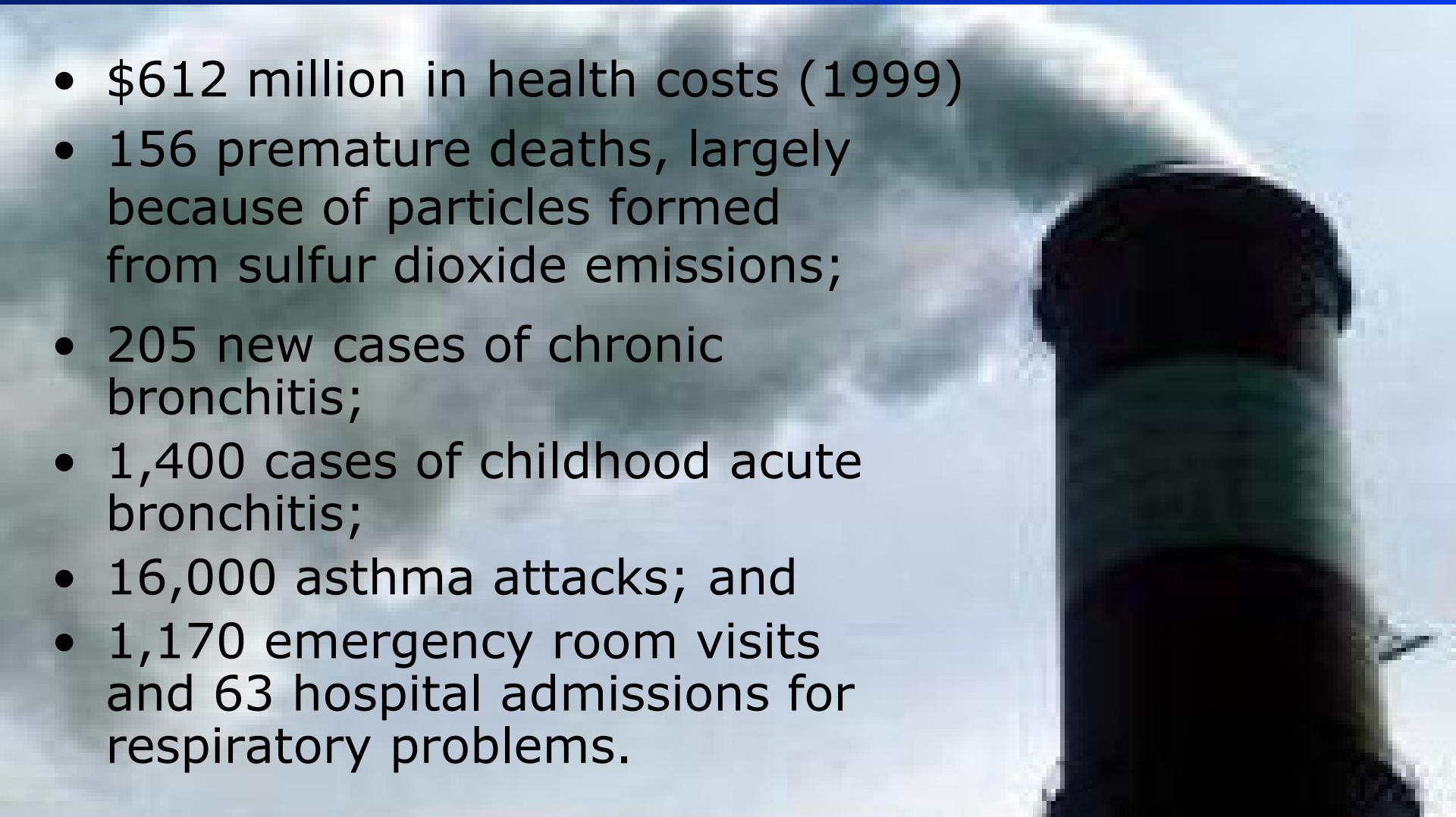
# Power Plants & Public Health



- $612 million in health costs (1999)
- 156 premature deaths, largely because of particles formed from sulfur dioxide emissions;
- 205 new cases of chronic bronchitis;
- 1,400 cases of childhood acute bronchitis;
- 16,000 asthma attacks; and
- 1,170 emergency room visits and 63 hospital admissions for respiratory problems.

# Wind to the Rescue?

- NYSERDA wind potential under the RPS = 3,000 MW
- 1/3 of the power currently produced by the 19 "grandfathered" (read: dirty) plants in NY State
- Wind potential is more than double that generated by the two largest emitters of $SO_2$ in the state

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# Wind: NY Environmental Benefits

## Based on New York ISO Spot Market Emission rates 7/1/2002 – 6/30/2003

| CO2 lbs/MWh | SO2 lbs/MWh | NOx lbs/MWh |
|---|---|---|
| 1100.3 | 5 | 1.8 |

| *Wind Energy Purchased* | | *Pollution Saved (Pounds Per Year)* | | | | *CO2 Comparison* | | |
|---|---|---|---|---|---|---|---|---|
| Level | kWh/Year | Coal | CO2 | SO2 | NOx | Number of Trees Planted | Miles Not Driven | Cars Taken Off the Road |
| One 1.5 MW Wind Turbine | 4,000,000 | 2,820,000 | 4,401,043 | 20,034 | 7,114 | 299,391 | 3,080,730 | 344 |
| University of Buffalo | 8,000,000 | 5,640,000 | 8,802,086 | 40,068 | 14,227 | 598,781 | 6,161,460 | 688 |
| 27 New York Municipalities | 9,750,744 | 6,874,275 | 10,728,361 | 48,837 | 17,341 | 729,821 | 7,509,853 | 839 |
| Whole Foods, 2 Regions | 11,200,000 | 7,896,000 | 12,322,921 | 56,095 | 19,918 | 838,294 | 8,626,045 | 963 |
| 30 MW Fenner Wind Farm | 80,000,000 | 56,400,000 | 88,020,864 | 400,680 | 142,272 | 5,987,814 | 61,614,605 | 6,880 |

- A 1.5 megawatt wind turbine produces approximately 4 million kWh a year.
- kWh/Year = 1500 KW (Generator Size) * 8760 (Hours/Year) * 30% (capacity factor)

# Economic Development: Wind

- Construction, maintenance jobs – short & long term
- Additional income – wind "footprint" does not disrupt other land uses

- Lease or royalty payments to landowners can be $2,000-3,000 month per turbine*
- Expands the local tax base

# Economic Development: Wind

| Cumulative Net Effects on Jobs, Landowner Payments & Taxes from 1,000 MW of Wind Power in Pennsylvania | | | | | |
|---|---|---|---|---|---|
| Wind Energy | % of PA Electricity | Short-term Construction Jobs | Long-term O&M jobs | Landowner Payments | County Tax Revenues |
| 1000 MW | 2% | 750 | 450 | $2.63 million | $7 million |

***Report: Tax Policies for Energy Security, Job Creation and Environmental Quality, 2001***

# Customer Benefits & Value

- Environmental/Sustainability Goal Achievement
  - Corporate/Organizational mandate, position
  - Internal constituency
  - Green Building Credit
- Community Relations
- Media Coverage
- Public Relations
- Investor Relations
- Employee/Student goodwill
- Marketing/Branding

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# PR, Media & Marketing


MONEY & BUSINESS

**Wind-power Revolution**

The private sector is breezing toward U.S. energy independence

Nature's Way
Plainville FARMS
Purely Delicious... Naturally!™

Grown with NEWWINDENERGY


# Customer PR/Media Value

## Case Study:

Penn

PR Equivalent Value of "Free" Media Coverage of Wind Power Purchase

| Media Segment | Name | Ad value | PR Equivalent (Multiplier of 3) |
|---|---|---|---|
| Daily Community Newspaper | The Philadelphia Inquirer | $250/col. Inch (10 inch avg.) | $7,500 |
| Community Newspaper | Pittsburgh Post-Gazette | $200/col. Inch (6 column inches) | $3,600 |
| University Paper | Daily Pennsylvanian | $680/half page ad | $2,040 |
| Radio Station | WHWH-AM 1350 | $50/ minute (3 minutes) | $450 |
| Television Station | NBC Channel 10 | $2,200 per minute (3 minutes) | $19,800 |
| Total | | | $33,390 |

# Education & Awareness

- Tangible, Visible
- Accessible (tours, events, media coverage)
- First-hand academic study

- Focal point of campaigns
  - CESA, SmartPower
  - Green-e regional standards
- Creates payback or return to ratepayer clean energy funds


CLEAN ENERGY. LET'S MAKE MORE.

# Case Studies: RPS Laws

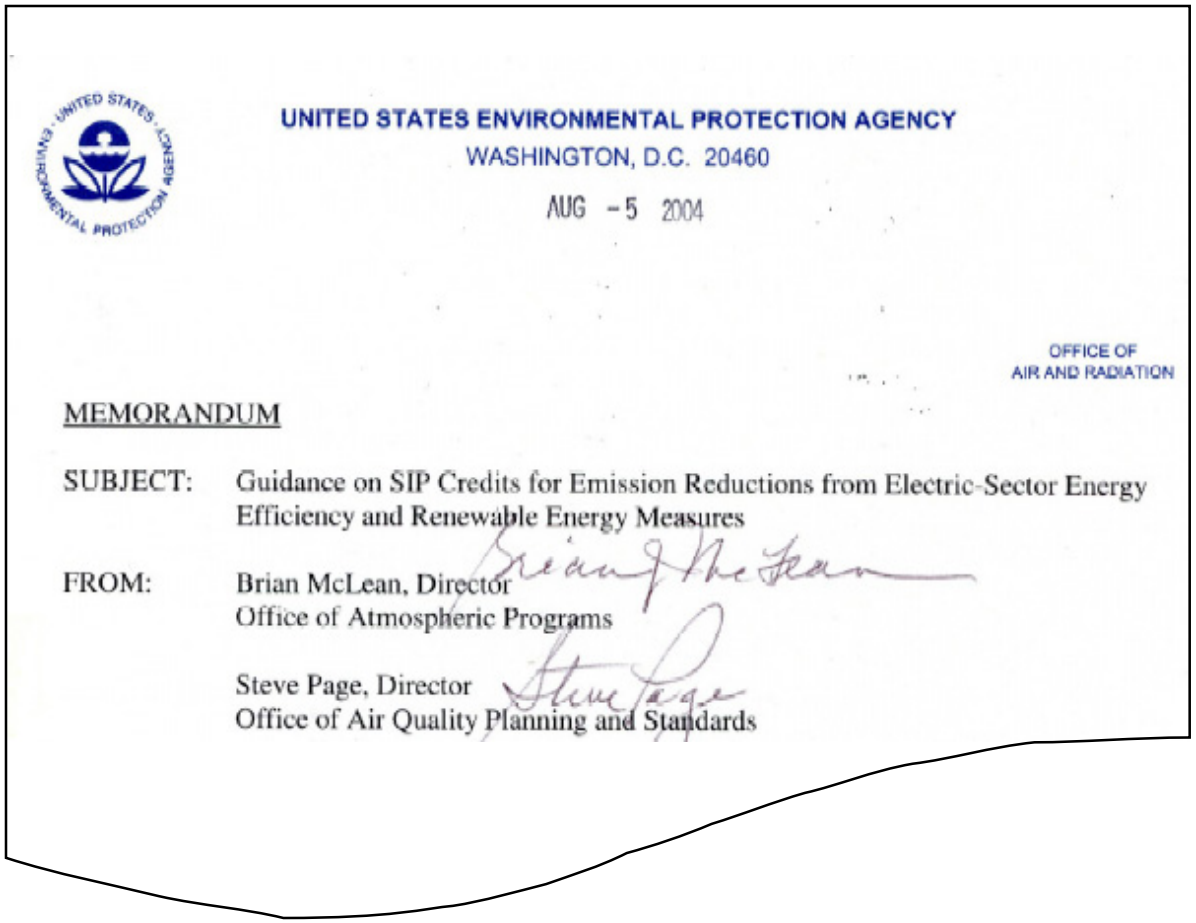
- RPS Laws overwhelmingly favor local/regional supply
  - Local environmental, health, economic benefits drive legislative/regulatory decisions
  - Technology choices, emissions standards, vintage requirements
  - Penalties/caps get re-invested in ratepayer clean energy funds

# Case Studies: RFPs

- U.S. General Services Administration
  - Pricing includes "assessment factors" which escalate as location of REC source facility gets further away from GSA load
- Montgomery County, MD Aggregation
  - Required from Maryland or West Virginia due to local airshed pollution impacts
- City of New Haven
  - Required technology and Northeast regional REC resources consistent with CT RPS law

# Case Study: Local Air Quality/SIPs

- EPA Guidance: states should use local renewable energy to meet emissions requirements under "SIPs" for local/ regional non-attainment



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

AUG - 5 2004

OFFICE OF
AIR AND RADIATION

MEMORANDUM

SUBJECT: Guidance on SIP Credits for Emission Reductions from Electric-Sector Energy Efficiency and Renewable Energy Measures

FROM: Brian McLean, Director
Office of Atmospheric Programs

Steve Page, Director
Office of Air Quality Planning and Standards

# Case Study: Customers Want Local!

- New York Municipal Wind Buyers Group
  - Campaign including 27 (and growing) towns throughout upstate NY; aggregating load to specifically purchase NY wind
- Whole Foods Market North Atlantic & Mid-Atlantic Regions
  - Decided to support local/regional wind projects as a benefit to the communities they serve
- Many more…diverse group from education, corporate, small business, government, residential sectors

# Case Study: Large, Long-term Purchasing = New Projects

- **University of Pennsylvania**
  - Original 5-year, 20,000,000 kWh purchase helped build local wind farms at Somerset, Mill Run, PA
  - Doubling to 10-year, 40,000,000 kWh purchase will largely contribute to financing brand new PA project
- **RI Renewable Energy Customer Aggregation**
  - 3 universities, 2 corporate customers seeking innovative green power options
  - CEI won RFP with "Contract for Differences" approach – finalizing a deal for a long-term financial "hedge" product that would finance a brand new New England wind farm

# Summary: Advantages & Benefits of Local/Regional Clean Energy

- Environmental & Public Health Benefits in Local & Regional Airshed
- Displacement of dirtier resources in the grid
- Additionality – investing in new projects that would not otherwise exist
- Economic Development
- Customer Value
- Education & Awareness

Building New Projects & Sustainable Markets:

*"Think Global…Act Local!"*

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